भारतीय मानक
*Indian Standard*

**IS 9287 : 2023**

# वस्त्रादि — पर्न-चेंजिंग स्वचालित करघों के लिए लकड़ी के शटल ब्लॉक — विशिष्टि

*( पहला पुनरीक्षण )*

# Textiles — Wooden Shuttle Blocks for Pirn-changing Automatic Looms — Specification

*( First Revision )*

ICS 59.120.30

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**October 2023** **Price Group 4**

Textile Machinery and Accessories Sectional Committee, TXD 14

## FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

This standard was originally published in 1979. The standard has been revised to incorporate the following changes:

a) References to Indian Standards have been updated;
b) Sampling clause has been modified;
c) Packing clause has been incorporated; and
d) Marking clause has been modified.

Since the dimensions of the shuttles vary to a great extent depending on the make of loom, this standard recommends the dimensions of blocks from which shuttles of various dimensions can be manufactured.

The composition of the Committee responsible for the formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## *Indian Standard*

# TEXTILES — WOODEN SHUTTLE BLOCKS FOR PIRN-CHANGING AUTOMATIC LOOMS — SPECIFICATION

## *( First Revision )*

### 1 SCOPE

This standard prescribes the requirements of wooden blocks used in the manufacture of shuttles for pirn-changing automatic looms.

### 2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

### 3 TYPES

**3.1** These blocks shall be either laminated compressed or solid compressed (*see* Fig. 1).

### 4 MATERIAL

**4.1** The following indigenous species of timber shall be used for manufacture of solid compressed and centre piece of laminated compressed blocks:

a) Hornbeam (*Curpinus* spp.);
b) Birch (*Betula* spp.);
c) Maple (*Acer* spp.);
d) Rubberwood (*Hevea brasiliensis*);
e) Khadsu oak (*Quercus semicorpiflia*); and
f) Cornel (*Cornus* spp.).

**4.2** For laminated sides of blocks, veneers of any of the species of timber listed in Annex B may be used.

**4.3** The timber used should be well-seasoned (*see* IS 1141).

**4.4** The slope of grain shall not be more than 1 in 20.

### 5 FREEDOM FROM DEFECTS

**5.1** The blocks shall be free from cracks, splits, honeycombing, gum veins, bark pockets and insect damage.

**5.2** Laminated blocks shall be free from checks, splits, blisters, discolouration, overlaps, gaps and delaminations.

**5.3** The blocks shall be as far as possible free from pin knots. One or two pin knots per block may be permitted provided these do not appear on the finished shuttle.

NOTE — For description of various types of defects, *see* IS 707.

### 6 FINISH

The blocks shall be unmachined but end-cut and shall be coated with wax up to 12 mm minimum at ends.

### 7 ATMOSPHERIC CONDITIONS FOR TESTING

Unless otherwise specified, the tests for evaluation shall be carried out in standard atmosphere at 65 percent ± 2 percent relative humidity and 27 °C ± 2 °C temperature (*see* IS 196).

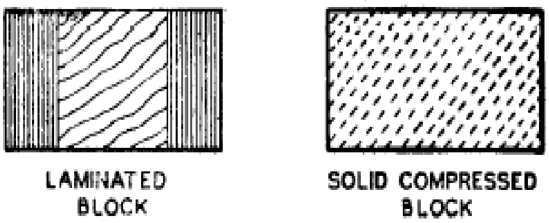

FIG. 1 SHUTTLE BLOCKS

## 8 REQUIREMENTS

**8.1** The blocks shall meet the following physical requirements when tested according to methods prescribed in IS 1708:

a) Specific gravity:
    1) Laminated blocks:
        i) Laminated sides: 1.1 to 1.3
        ii) Centre piece: Not less than 0.95
    2) Solid wood blocks: 1.1 to 1.3
b) Moisture content and volatile matter: 8 percent to 12 percent

**8.1.1** Variation of specific gravity in a lot shall be within ± 5 percent.

**8.2** The dimensions of the blocks should preferably be as given in Table 1.

**Table 1 Dimensions of Blocks**

(*Clause* 8.2)

All dimensions in millimetres.

| Sl No.<br>(1) | Length<br>(2) | Width<br>(3) | Thickness<br>(4) |
|---|---|---|---|
| i) | 370 | 48 | 36 |
| ii) | 380 | 48 | 36 |
| iii) | 380 | 50 | 38 |
| iv) | 380 | 52 | 39 |
| v) | 400 | 50 | 37 |
| vi) | 400 | 52 | 34 |
| vii) | 400 | 52 | 37 |
| viii) | 410 | 53 | 37 |
| Tolerance | + 3<br>− 0 | + 1<br>− 0 | + 1<br>− 0 |

## 9 SAMPLING

### 9.1 Lot

The quantity of blocks made from the same species of timber and of the same dimensions delivered to a buyer against a despatch note shall constitute a lot.

**9.2** The conformity of the lot shall be determined on the basis of the tests carried out on blocks selected at random from each lot.

**9.3** Unless otherwise agreed to between the buyer and the seller the number of blocks to be selected at random from a lot shall be according to col (2) and col (3) of Table 2. To ensure the randomness of selection, methods given in IS 4905 shall be followed.

**9.4** The number of blocks to be inspected for freedom from defects and dimensions shall be according to col (2) and col (3) of Table 2. The lot shall be considered conforming to the requirements for the above characteristics if the number of blocks found defective for any one or more of the characteristics are less than or equal to the corresponding number given in co1 (4) of Table 2.

**9.4.1** The number of blocks to be inspected for specific gravity, moisture content and volatile matter shall be according to co1 (5) of Table 2. The lot shall be considered conforming to the requirements of this standard if all the test results for various characteristics satisfy the relevant requirements.

## 10 MARKING

**10.1** The blocks shall be marked with the following:

a) Manufacturer’s name, initials or trade-mark, if any;
b) Name and type of the block;
c) Gross and net mass;
d) Lot/batch number;
e) Country of origin; and
f) Any other information required by the law in force and/or by the buyer.

### 10.2 BIS Certification Marking

The block(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

## 11 PACKING

Wooden shuttle blocks shall be suitably packed as may be agreed to between the concerned parties. The package should contain fixed number of wooden shuttle blocks essentially of the same variety.

### Table 2 Sample Size and Criteria for Conformity

(*Clauses* 9.3 *and* 9.4)

| Sl No. (1) | Lot Size (2) | Sample Size (3) | Permissible Number of Defective Blocks (4) | Sub-sample Size (5) |
|---|---|---|---|---|
| i) | Up to 150 | 8 | 1 | 3 |
| ii) | 151 to 280 | 13 | 1 | 3 |
| iii) | 281 to 500 | 20 | 2 | 3 |
| iv) | 501 and above | 32 | 3 | 5 |

## ANNEX A

(*Clause* 2)

## LIST OF REFERRED STANDARDS

| *IS No.* | *Title* |
|---|---|
| IS 196 : 1966 | Atmospheric conditions for testing (*revised*) |
| IS 707 : 2011 | Timber technology and utilization of wood, bamboo and cane — Glossary of terms (*third revision*) |
| IS 1141 : 1993 | Seasoning of timber — Code of practice (*second revision*) |
| IS 1708 | Methods of testing of small clear specimens of timber: |
| (Part 1) : 1986 | Determination of moisture content (*second revision*) |
| (Part 2) : 1986 | Determination of specific gravity (*second revision*) |
| IS 4905 : 2015/ ISO 24153 : 2009 | Random sampling and randomization procedures (*first revision*) |

## ANNEX B

(*Clause* 4.2)

## SPECIES OF TIMBER RECOMMENDED FOR VENEERS FOR LAMINATED SIDES OF THE SHUTTLE BLOCKS

| | |
|---|---|
| Aini | (*Arlocarpus hirsuta*) |
| Amocra | (*Amoora wallichii*) |
| Chaplash | (*Artocarpus chaplasha*) |
| Chilauni | (*Schima wallichii*) |
| Garjan | (*Dipterocarpus* spp.) |
| Hollock | (*Terminalia myriocarpa*) |
| Kokko | (*Albizzzia lebbeck*) |
| Mango | (*Adangijka indica*) |
| Makai | (*Shorea assamica*) |
| Mundani | (*Acrocarpus fraxinifolius*) |
| Pali | (*Palaquium ellipticurn*) |
| Poon | (*Callophylum* spp.) |
| Pyinma | (*Lagerstroemia hypoleuca*) |
| Vellapine | (*Veteria indica*) |
| Badam | (*Terminalia procera*) |
| Silver oak | (*Greoilba robusta*) |

## ANNEX C

(*Foreword*)

## COMMITTEE COMPOSITION

Textile Machinery and Accessories Sectional Committee, TXD 14

| *Organization* | *Representative(s)* |
|---|---|
| Central Manufacturing Technology Institute, Bengaluru | Dr Nagahanumaian **(*Chairperson*)** |
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